

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D
Beth M. Albertson, M.S.
Bradley T. Benson
Kelley D. Wilt

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
FAX: (206) 283-5044

August 7, 1996

Gerry Thompson, Project Manager
Alaskan Copper Works
628 South Hanford
Seattle, WA 98134

Dear Mr. Thompson:

Enclosed are the results from the testing of sample M54082, submitted for identification on August 1, 1996 from your 4700 Colorado Drum Liquid ID project, PO #M54082.

The sample consisted of a yellow liquid with a suspension of black particulate matter. The sample was analyzed by gas chromatography, and as shown on the accompanying GC/FID trace, it contains medium boiling compounds eluting from about 11 to 21 minutes. The pattern of these peaks suggests that the material is a middle distillate solvent. Middle distillates are used in a wide variety of applications, including use as a form oil and cutting fluid. The middle distillate constitutes about 95% of sample M54082. The remaining 5% appears to be an inorganic suspension of sandblast material and/or soil.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Kurt Johnson
Chemist

keh
Enclosures
ACU0807R.DOC

Date of Report: August 7, 1996

Date Received: August 1, 1996

Project: 4700 Colorado Drum Liquid ID, PO #M54082

Date Samples Extracted: August 2, 1996

**RESULTS FROM THE ANALYSIS OF THE WATER SAMPLE
FOR FINGERPRINT CHARACTERIZATION
BY CAPILLARY GAS CHROMATOGRAPHY
USING A FLAME IONIZATION DETECTOR (FID)
AND ELECTRON CAPTURE DETECTOR (ECD)**

Sample ID

M54082

GC Characterization

The GC trace using the flame ionization detector (FID) showed the presence of medium boiling compounds. The patterns displayed by these peaks are indicative of a middle distillate solvent.

The medium boiling compounds appeared as a regular pattern of peaks eluting from n -C₁₅ to n -C₂₄ showing a maximum near n -C₁₇. A regular pattern of the n -alkanes is seen for this product.

The large peak seen near 25 minutes on the GC/FID trace is pentacosane, added as a quality assurance check for this GC analysis. There is a second surrogate present that is seen on the GC/ECD trace at about 26 minutes which is dibutyl chlorendate.

FRIEDMAN & BRUYA, INC.
3012 15th Avenue West
Seattle, WA 98119-2029
(206) 285-8282

SAMPLE CHAIN OF CUSTODY

KNJ AI
8-1-96
11:25am

Send Report To: Alaskan Copper Works Contact: GERALD Thompson
Company: 628 Hawthorne St
Address: Seattle
City, State, Zip: WA
Phone #: (206) 352-8379 FAX #: (206) 352-4308 Date: 8-1-96

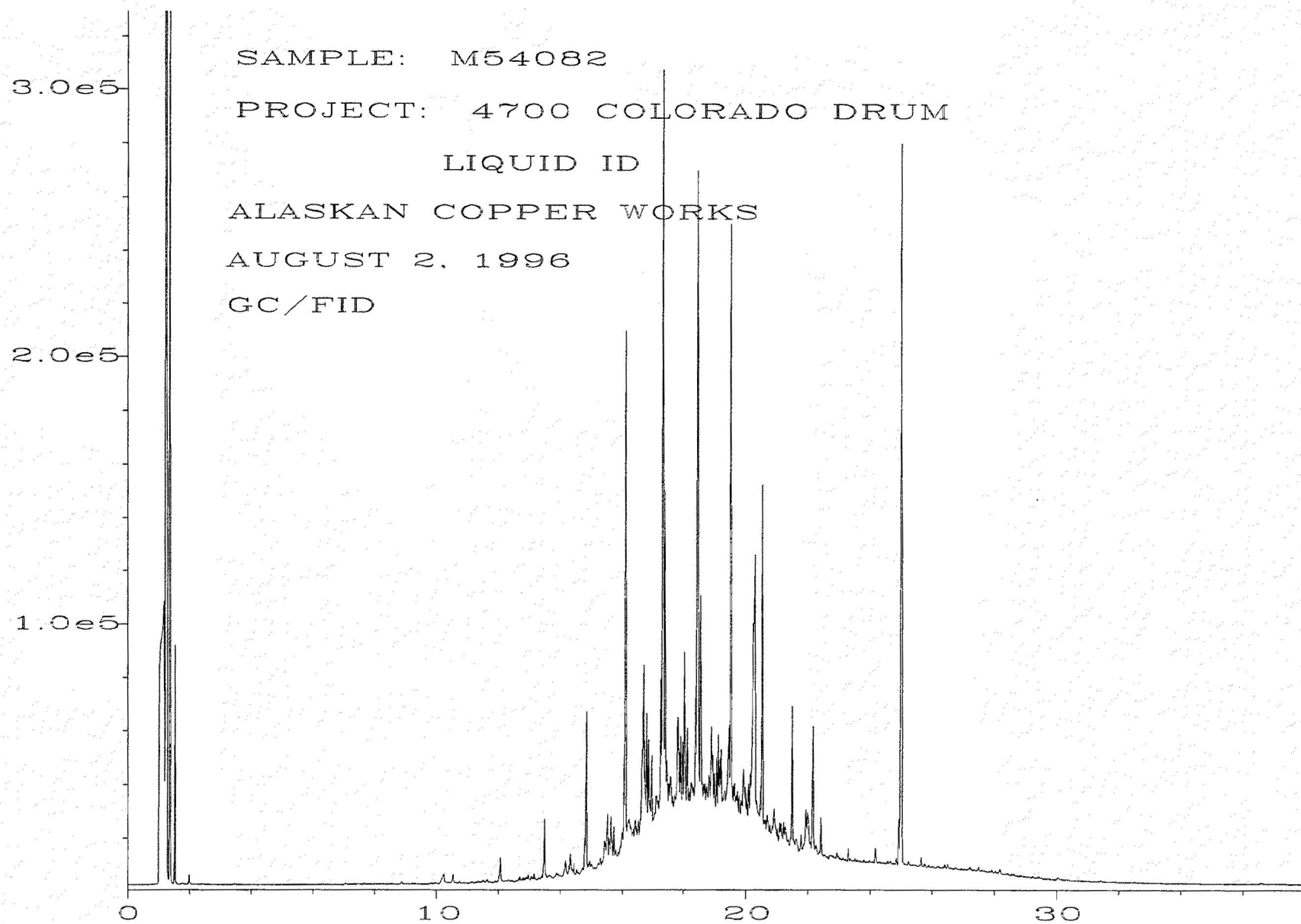
SITE NO.	PROJECT NAME	PURCHASE ORDER #
	<u>4700 Colorado Drum ID</u>	<u>M54082</u>

SAMPLERS (signature)	PROJECT LOCATION
<u>[Signature]</u>	<u>4700 Colorado</u>

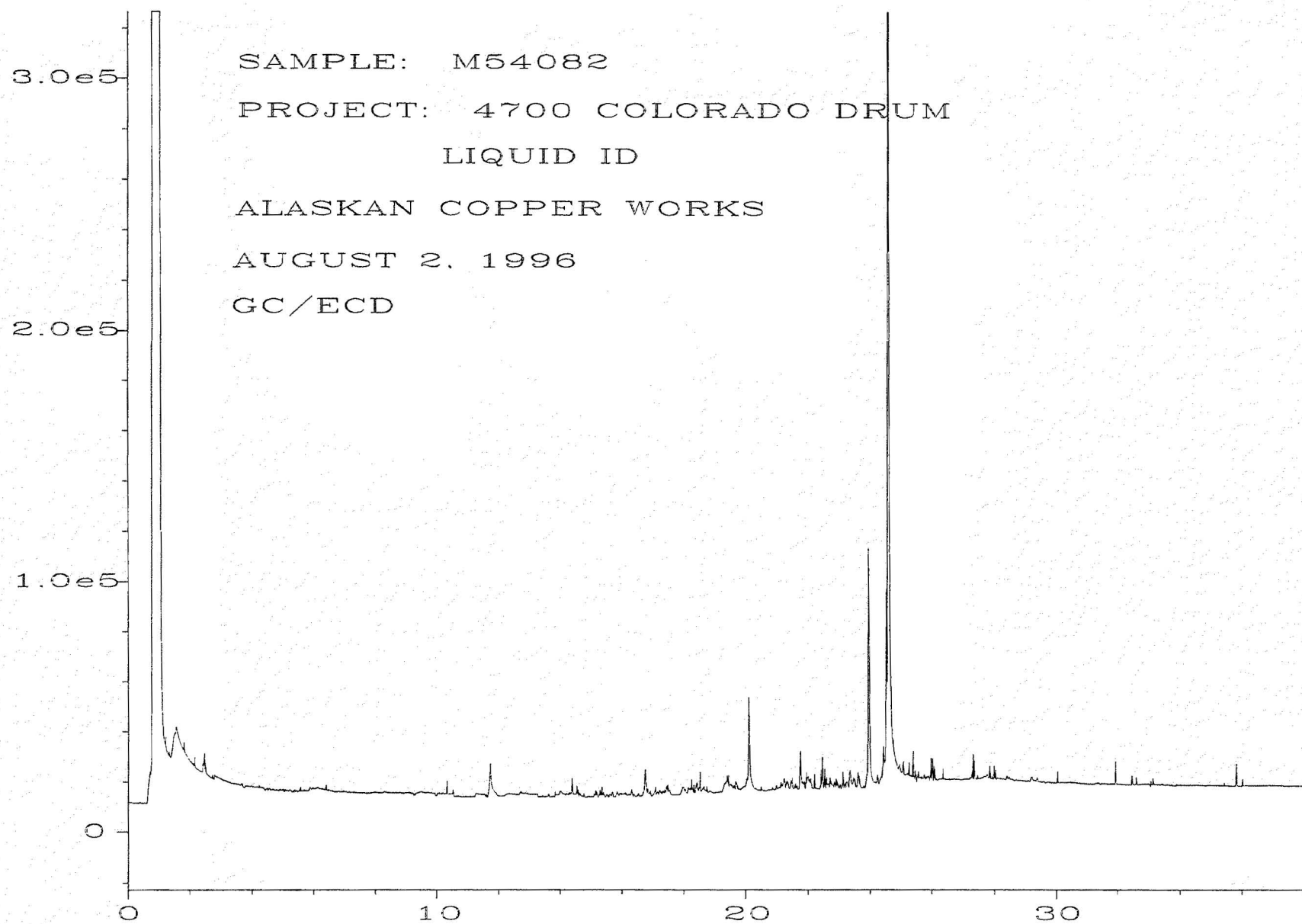
REMARKS	SAMPLE DISPOSAL INFORMATION
	<input type="checkbox"/> Dispose after 30 days <input checked="" type="checkbox"/> Return Samples <input type="checkbox"/> Call for Instructions

Sample #	Date/Time Sampled	Type of Sample	# of Jars	Lab Sample #	Analyses Requested
<u>M54082</u>	<u>8-1-96 9:15</u>	<u>H2O</u>	<u>1</u>	<u>71174</u>	<u>ID</u>

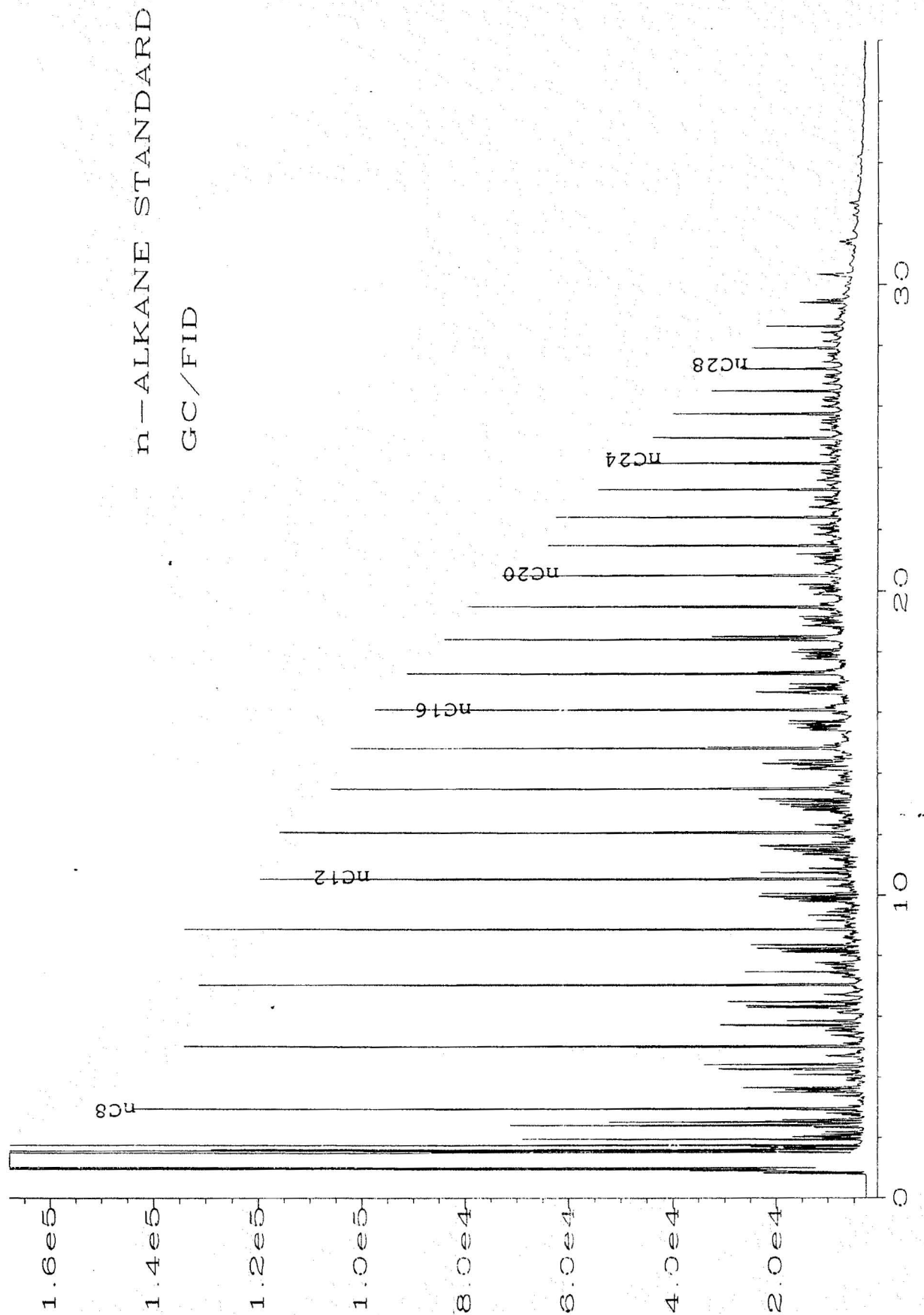
SIGNATURE	PRINT NAME	COMPANY	Date	Time
Relinquished by: <u>[Signature]</u>	<u>GERALD Thompson</u>	<u>ACW</u>	<u>8-1-96</u>	<u>10:30</u>
Received by: <u>[Signature]</u>	<u>KURT JOHNSON</u>	<u>FB&I</u>	<u>8-1-96</u>	<u>10:46</u>
Relinquished by:				
Received by:				



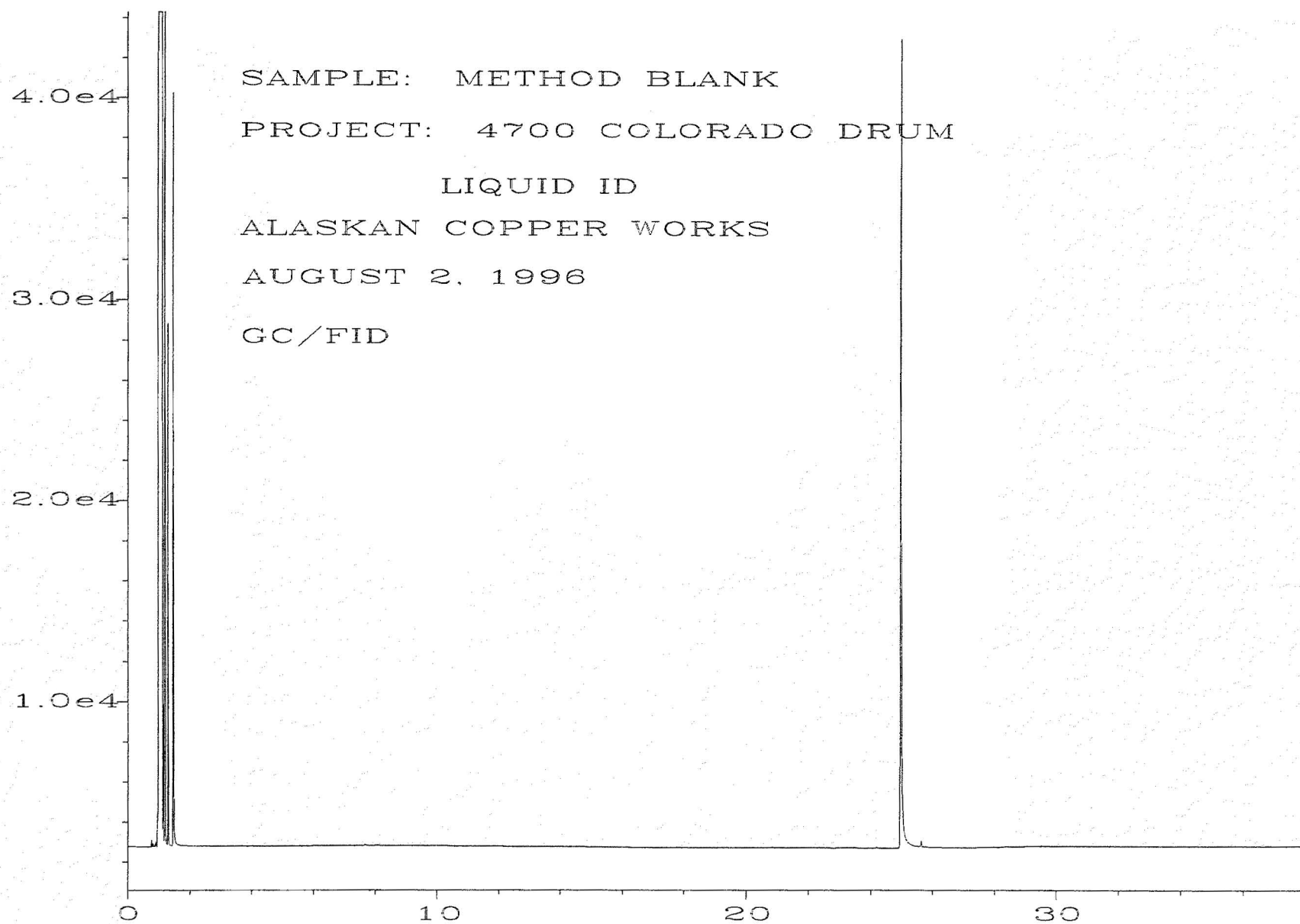
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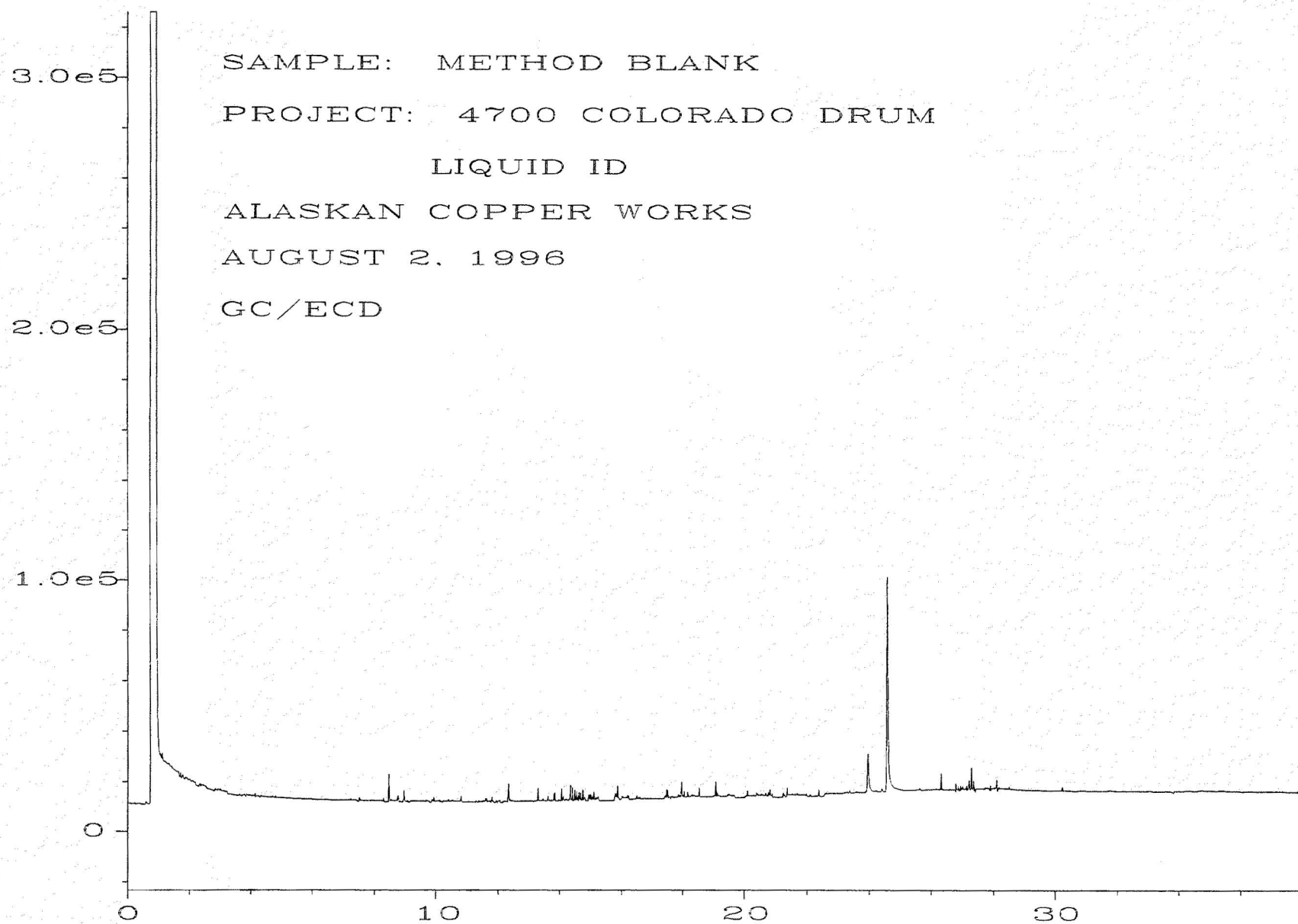
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Sig. 1 in C:\HPCHEM\4\DATA\08-02-96\011F0901.D



Sig. 2 in C:\HPCHEM\4\DATA\08-02-96\011R0901.D

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August 7, 1996

INVOICE # 96ACU0807-2
DUPLICATE COPY

Accounts Payable
Alaskan Copper Works
628 South Hanford
Seattle, WA 98134

RE: Project 4700 Colorado Drum Liquid ID: Results of testing requested by
Gerry Thompson, Project Manager for material submitted on August 1, 1996.

1 water sample characterized by capillary
gas chromatography @ \$250 per sample

\$ 250.00

Amount Due

\$ 250.00

ALASKAN COPPER' MRO

..... (AUTO)

FILE	FILE TYPE	OPTION	TEL NO.	PAGE
077	MEMORY TX		97631589	08

..... REMAINING CALL CAPACITY 299

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